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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,251	02/07/2002	Steven D. MacLean	81635APRC	3271

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EXAMINER	
HERNANDEZ, NELSON D	

ART UNIT	PAPER NUMBER
2612	

DATE MAILED: 02/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/072,251	MACLEAN ET AL.	
	Examiner	Art Unit	
	Nelson D. Hernandez	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 February 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,5 and 8-10* is/are rejected.

7)☒ Claim(s) *3,6 and 7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 April 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/15/2002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: in page 2, ¶ 0011 of the specifications "Figures 1a-e" should be written as "Figures 1a-f".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims **1** and **10** is rejected under 35 U.S.C. 102(e) as being anticipated by Oda, US Patent 6,831,692 B1.

Regarding **claim 1**, Oda discloses an image pickup apparatus (Fig. 1: 10) to be used in an electronic camera, comprising: a multi-mode image sensor (Fig. 1: 14) having an array of light sensitive elements (See photosensitive cells fig. 1: 14), wherein the sensor provides an output signal derived from the array, and wherein the output signal has a transfer function that includes a normal sensitivity region (Output by photosensitive cells S_L in fig 1), a highlight sensitivity region (Output by photosensitive cells S_H in fig. 1), and a breakpoint between the regions (Saturation point of the photosensitive cells in fig. 1); and a correction circuit for correcting differences between breakpoints of the transfer function (Signal slicing 142 in adjusting circuit in fig. 1: 14f for

allowing the saturation level to remain constant), wherein the differences are caused by different light sensitive elements of the array (Col. 4, lines 11-67; col. 5, lines 1-25; col. 7, lines 24-42; col. 8, lines 1-50).

Regarding **claim 10**, Oda discloses a method for improving the highlight reproduction of an imaging system, comprising: identifying highlight regions (Output from high sensitivity sensor S_H in fig. 1) in a multi-channel image of a scene; identifying a first channel (Output from high sensitivity sensor S_H in fig. 1), wherein the first channel includes saturated signal values in a portion of the highlighted region; identifying a second channel (Output from high sensitivity sensor S_L in fig. 1), wherein the second channel includes unsaturated signal values in the portion of the highlighted region; and modifying the signal values of the first channel in the portion of the highlighted region using the signal values in the second channel (Col. 4, lines 11-67; col. 5, lines 1-25; col. 7, lines 24-42; col. 8, lines 1-50).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim **2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Oda, US Patent 6,831,692 B1 in view of Ginosar, US Patent 5,247,366.

Regarding **claim 2**, Oda does not explicitly disclose that the correction circuit includes at least one lookup table, wherein the at least one lookup table has an input to

identify a particular light sensitive element of the array, and wherein the at least one lookup table has an output to provide a correction value.

However, Ginosar teaches a color wide range camera (Fig.1), wherein the dynamic range is adjusted by using lookup tables (Fig. 10: 142) to adjust the gain of the received signal in a pixel-by-pixel basis of the long exposures and short exposure signals so as to enhance the dynamic range of bright areas (Col. 7, line 32 – col. 8, line 14).

Therefore, taking the combined teaching of Oda in view of Ginosar as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Oda by using lookup tables to adjust the signal of sensor elements detecting bright areas. The motivation to do so would help the camera to increase the dynamic range as suggested by Ginosar (Col. 7, lines 32-55).

6. Claims **4**, **5**, **8** and **9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mihara, US Patent 6,088,059 in view of Oda, US Patent 6,831,692 B1.

Regarding **claim 4**, Mihara discloses a method for improving the highlight reproduction of an imaging system (Fig. 1), comprising: identifying highlight regions in the image (Col. 4, lines 1-24; col. 7, line 11 – col. 8, line 55); calculating flare intensity values for the image using the locations of the highlight regions (Col. 7, line 11 – col. 8, line 55); and subtracting the flare intensity values from the image (Col. 7, line 58 – col. 8, line 55). Mihara does not explicitly disclose providing a multi-channel image of a multimode image sensor.

However, Oda teaches a multi-mode image sensor (Fig. 1: 14) having an array of light sensitive elements (See photosensitive cells fig. 1: 14), wherein the sensor

provides an output signal derived from the array, and wherein the output signal has a transfer function that includes a normal sensitivity region (Output by photosensitive cells S_L in fig 1) and a highlight sensitivity region (Output by photosensitive cells S_H in fig. 1), wherein said outputs are used to adjust the saturation level to a constant value so as to increase the dynamic range of the image pickup apparatus (Col. 4, lines 11-67; col. 5, lines 1-25; col. 7, lines 24-42; col. 8, lines 1-50).

Therefore, taking the combined teaching of Mihara in view of Oda as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mihara by providing a multi-channel image of a scene using a multi-mode image sensor having an array of light sensitive elements, wherein the sensor provides an output signal derived from the array, and wherein the output signal has a transfer function that includes a normal sensitivity region and a highlight sensitivity region. The motivation to do so would help to adjust the saturation level to a constant value so as to increase the dynamic range of the image pickup apparatus as suggested by Oda (Col. 8, lines 1-50).

Regarding **claim 5**, Mihara discloses that the flare intensity values are determined using a convolution function (Col. 7, line 58 – col. 8, line 55).

Regarding **claim 8**, the combination of Mihara in view of Oda as applied in claim 4 teaches that the image is a multi-channel image (See Oda, col. 4, lines 11-67; col. 5, lines 1-25; col. 7, lines 24-42; col. 8, lines 1-50). Therefore, grounds for rejecting claim 4 apply here.

Regarding **claim 9**, the combination of Mihara in view of Oda as applied in claim 4 teaches that the image is provided using a multimode sensor (See Oda, col. 4, lines

11-67; col. 5, lines 1-25; col. 7, lines 24-42; col. 8, lines 1-50). Therefore, grounds for rejecting claim 4 apply here.

Allowable Subject Matter

7. Claims **3**, **6** and **7** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim **3**, the primary reason for indicating allowable subject matter is that the prior art fails to teach or reasonably suggest that the lookup table has an output to provide a same cluster identifier for each of the plurality of particular light sensitive elements.

Regarding claims **6** and **7**, the primary reason for indicating allowable subject matter is that the prior art fails to teach or reasonably suggest that the flare intensity values are calculated using an equation that is a function of the distance from at least one highlight region.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson D. Hernandez whose telephone number is (703) 305-8717, [(571) 272-7311 after February 28, 2005]. The examiner can normally be reached on 8:30 A.M. to 6:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R. Garber can be reached on (703) 305-4929, [(571) 272-7308 after February 28, 2005]. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nelson D. Hernandez
Examiner
Art Unit 2612

NDHH
February 17, 2005

WENDY R. GARBER
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